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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH S. STAM, GREGORY A. MART, KEITH H. BERENDS,
GREGORY S. BUSH, JOHN K. ROBERTS, MARK W. PIERCE, JON H.
BECHTEL, ERIC J. WALSTRA, and BROCK R. RYCENGA

Appeal 2008-2861
Application 10/645,801
Technology Center 2600

Decided: November 25, 2008

Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT and KARL
D. EASTHOM, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Final Rejection of claims 1-20, 24-28, 35-40, 42-53 and 64-74. The Examiner indicated that

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claims 21-23, 29-34 and 41 will be allowed if rewritten in independent form (*see App. Br. 5, Final Office Action, mailed September 29, 2006*).¹ No other claims are pending. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants disclose and claim an automatic vehicular exterior light control system. The system analyzes and discriminates oncoming head light and leading tail light images and decides to dim or not to dim the vehicular exterior lights. The system uses classification rules or a neural network to classify lights as either tail lights or head lights. (*See generally Spec. ¶¶ 0004, 0083, 0089-93*). The rules or network are “trained” by persons or an automatic system. Such training persons or system “may be referred to as having ‘expert knowledge’ of the classification problem” (Spec. ¶ 0098). Training is performed by providing a neural network with numerous classified samples of data to be classified, and then adjusting weighting factors in the network based upon that data, and comparison to stored data. (*Id.*)

Claim 1 is illustrative of the invention and reads as follows:

1. An automatic vehicular exterior light control, comprising:
a controller configured to generate at least one exterior light control signal as a function of a classification network, said controller is further configured to execute a first algorithm comprising at least one second algorithm selected from the group comprising: an on state to off state transition state algorithm and an off state to on state transition state

¹ Appellant also appeals from the Examiner’s objection to Claim 41. (App. Br. 16). We lack jurisdiction to decide objections.

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algorithm, wherein the classification network is trained using light sources classified using expert knowledge.

The Examiner relies on the following prior art references to show unpatentability:

Stam	US 6,049,171	Apr. 11, 2000
Breed	US 6,393,133 B1	May 21, 2002 (filed Sep. 3, 1999)
Ii	US 2004/0032981 A1	Feb. 19, 2004 (filed Aug. 13, 2002)

R. Paul Gorman and Terrence J. Sejnowski, *Learned Classification of Sonar Targets Using a Massively Parallel Network*, IEEE Transactions on Acoustics, Speech, and Signal Processing, vol. 36, no. 7, 1135-1140 (1988).

The Examiner rejected claims 4-19 and 64 under 35 U.S.C. §112 1st ¶ as lacking in written description.

The Examiner rejected claims 1-3, 40, 42, 44-53, 65-69, 71 and 74 under 35 U.S.C. § 102(e) as being anticipated by Breed.

The Examiner rejected claims 20, 24, 25, 27, 28 and 35-39 under 35 U.S.C. § 103(a) as being obvious over the collective teachings of Breed and Ii.

The Examiner rejected claim 43, 70, 72, and 73 under 35 U.S.C. § 103(a) as being obvious over the collective teachings of Breed and Stam.

The Examiner rejected claim 26 under U.S.C. § 103(a) as being obvious over the collective teachings of Breed, Ii, and Stam.

ISSUES

This Appeal presents two issues. First, the Examiner found that claim 4 lacks written description for the phrase “wherein at least one output of said

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neural network comprises at least three states.” (Ans. 4).² The Examiner also found that claim 64 lacks written description for a “threshold number of streetlights per area.” (Ans. 4, 5). Appellants do not respond to either of the Examiner’s findings in either their Brief³ or Reply Brief.⁴ Thus, the first issue:

Did Appellants meet their burden on appeal of asserting error in the Examiner’s written description rejection based on 35 U.S.C. 112 1st ¶?

Second, the Examiner found that Breed anticipates claims 1-3, 40, 42, 44-53, 65-69, 71 and 74. (Ans. 5-11). Appellants focus on claim 1 and argue that Breed does not teach neural networks or probability functions for the purpose of automatic vehicle exterior light control. (App. Br. 19). Thus the second issue:

Did Appellants meet the burden on appeal of showing that the Examiner erred in finding that Breed discloses automatic vehicle exterior light control using “a classification network . . . trained using light sources classified using expert knowledge” as required by claim 1?

FINDINGS OF FACT (FF)

1. Appellants do not dispute the Examiner’s finding and conclusion that claims 4-19 and 64 lack written description under 35 U.S.C. §112 1st ¶. (Ans. 4, 5).

2. Breed discloses “an exterior monitoring system for use in detecting the headlights of an oncoming vehicle or the taillights of a vehicle in front of [the driven] vehicle 810.” (Col. 20, ll. 12-14) Breed continues:

² Answer (mailed August 24, 2007).

³ Filed March 5, 2007.

⁴ Filed September 13, 2007.

Once again, the key to this technology is the use of trained pattern recognition algorithms and particularly of the artificial neural network. Here as in other cases above and in the co-pending patent applications referenced above, the pattern recognition system is trained to recognize the pattern of headlights of an oncoming vehicle or the taillights of a vehicle in front of vehicle 810 and to then dim the headlights when either of these conditions is sensed. It is also trained to not dim the lights from other reflections such as off of a signpost or the roadway.

(Col. 20, ll. 17-25) (emphasis added).

3. Breed also generally discloses neural networks and pattern recognition, for a variety of systems. (Col. 3, ll. 18-67). Breed discloses that neural systems are “central to th[e] invention,” requiring only a few lines of code that are “easy to implement at a low cost.” (Col. 4, l. 59 to col. 5, l. 33; *see also* col. 7, l. 23; col. 8, ll. 44-49 (disclosing smart headlight dimmer systems)).

4. Breed discloses, and incorporates by reference, several patents and articles, including Gorman, teaching neural networks and pattern recognition (col. 5, l. 9 to col. 6, l. 23). Referring to such teachings, Breed specifically discloses, using the known “trained pattern recognition systems . . . in the instant invention to identify and classify, and in some cases to locate, the illuminated object and its constituent parts.” (Col. 6, ll. 19-23).

PRINCIPLES OF LAW

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie*

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obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

Appellants may sustain this burden by showing that the prior art reference relied upon by the Examiner fails to disclose an element of the claim. Anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim. *See In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986). Appellants have a similar burden on appeal under 35 U.S.C. § 112. *Hyatt v. Dudas*, 492 F.3d 1365, 1369-71 (Fed. Cir. 2007).

Arguments which Appellants could have made but chose not to make in the Briefs are deemed to be waived. “Each ground of rejection must be treated under a separate heading.” 37 C.F.R. § 41.37(c)(1)(vii).

ANALYSIS

With respect to the first issue, Appellants do not respond to the Examiner’s findings that claims 4-19 and 64 lack written description under 35 U.S.C. §112 1st ¶. Thus, Appellants did not meet their burden on appeal and waived any potential arguments in response to the Examiner’s 35 U.S.C. 112 rejection. *See Kahn, Dudas*, and 37 C.F.R. § 41.37(c)(1)(vii), *supra*.

With respect to the second issue, Breed discloses an easy to implement trained neural network headlight dimmer system. The system is trained to recognize, differentiate, and categorize patterns of headlights, sign reflections, and taillights, and to dim or not to dim car lights accordingly. Breed’s system therefore constitutes “a classification network . . . trained

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using light sources classified using expert knowledge” as required by claim 1. (FF 2-4). Appellants’ arguments simply fail to demonstrate any difference between Breed and their claimed system.

Appellants’ argument that Gorman does not disclose neural networks (App. Br. 19) does not address the Examiner’s cumulative findings (*see Ans. 5-11, 20-21*), supported factually (FF 2-4), that Breed discloses such networks. Gorman, incorporated by reference, merely supplements those teachings (FF 4). Breed’s simple system, involving a few lines of code (FF 3), and amply supported without Gorman, does not necessarily require Gorman’s teachings to meet the claim. The argument that Gorman does not teach probability functions (App. Br. 19) is not commensurate in scope with claim 1.

Accordingly, the Examiner’s rejection of claim 1 is sustained. Appellants do not present separate patentability arguments for the anticipatory rejections of claims 2, 3, 40, 42, 44-53, 65-69, 71, and 74. (*See App. Br. 19-24*). Appellants also do not present separate patentability arguments for claims 20, 24, 25, 27, 28 and 35-39 based on the added teaching of Ii, for claims 26, 43, 70, 72, and 73 based on the added teaching of Stam, or for claim 26 based on the added teachings of Ii and Stam (*See App. Br. 24-27*). Appellants’ mere repetition of claim elements and conclusions asserting error, without more, neither amount to separate patentability arguments, nor demonstrate error in the Examiner’s findings. *See Kahn, Dudas, and 37 C.F.R. § 41.37(c)(1)(vii), supra.*

CONCLUSION

Appellants did not meet their burden on appeal of asserting error in the Examiner’s written description rejection based on 35 U.S.C. 112 1st ¶. Appellants also did not meet their burden on appeal of showing that the

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Examiner erred in finding that Breed discloses automatic vehicle exterior light control using “a classification network . . . trained using light sources classified using expert knowledge” as required by claim 1. We sustain all rejections on appeal.

DECISION

We affirm the Examiner’s decision rejecting claims 1-20, 24-28, 35-40, 42-53 and 64-74.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

AFFIRMED

gvw

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